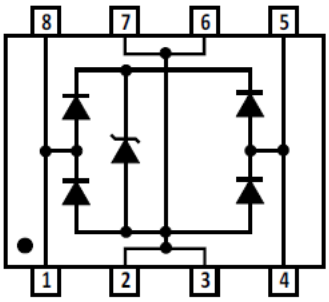
Low Capacitance TVS Diode Array

DESCRIPTION:



The ALPLC6VP8U is Low Capacitance TVS Diode Array with 5000 Watts Peak Pulse Power (t_p=8/20 µs) and Low leakage current and clamping voltage for Interface and line card applications.

ALPLC6VP8U robust diodes can safely absorb repetitive ESD strikes at ±8kV (contact discharge, IEC 61000-4-2) without performance degradation. Additionally, each diode can safely dissipate 180A of 8/20µs surge current (IEC61000-4-5) with very low clamping voltages.

FEATURES:

- 5000 Watts Peak Pulse Power (t_p=8/20 µs)
- Protects two lines in common and differential mode
- SOP-8 package
- Low leakage current and clamping voltage
- Low capacitance
- Transient protection to
  - ESD, IEC 61000-4-2, ±8kV contact, ±15kV air
  - EFT, IEC 61000-4-4, 40A (5/50ns)
  - Lightning, IEC 61000-4-5, 180A (8/20µs)
  - ITU-T K.20, K.21, K.45, K.44 40A (5/310µs)
  - Telcordia GR-1089-CORE 100A (2/10µs)
- RoHS compliant, Halogen-free and Lead- free

APPLICATIONS:

- T1/E1 Line Cards
- T3/E3 and DS3 Interfaces
- STS-1 Interfaces
- ISDN S/T-Interfaces, U-Interfaces
- 10/100 Ethernet

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Specified)			
PARAMETER	**SYMBOL**	**VALUE**	**UNITS**
Peak Pulse Power (t_p=8/20µs)	P_{PP}	5000	W
Peak Pulse Current (t_p=8/20µs)	I_{PP}	180	A
Operating Temperature	T_J	–55 to 150	°C
Storage Temperature	T_{STG}	–55 to 150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C Unless Otherwise Specified)							
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Reverse Standoff Voltage			V_{RWM}			6.0	V
Reverse Breakdown Voltage	I_T = 1mA		V_{BR}	6.8	7.2		V
Reverse Leakage Current	V_R = 6V		I_R		3	25	µA
Clamp Voltage (IEC 61000-4-5)	I_{PP} = 100A	t_p= 8/20µs	V_C		15	20	V
	I_{PP} = 180A	t_p= 8/20µs			23	28	V
Junction Capacitance	V_R=0V, f=1MHz, I/O to I/O		C_J		5		pF
	V_R=0V, f=1MHz, I/O to GND				10		pF

TYPICAL DEVICE CHARACTERISTICS CURVES

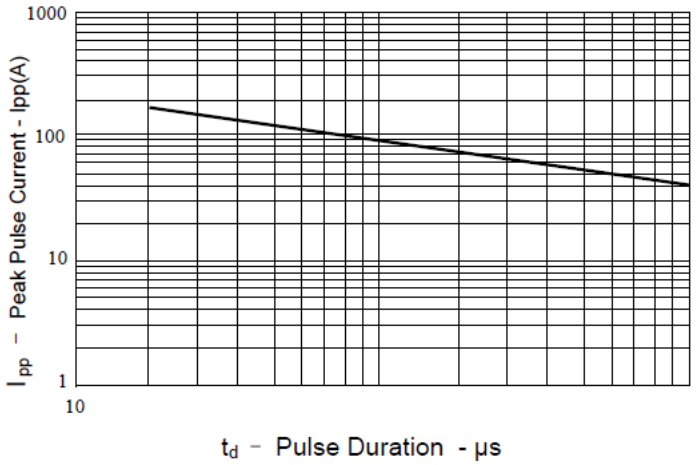


Fig.1 Peak Pulse Current vs. Pulse Time

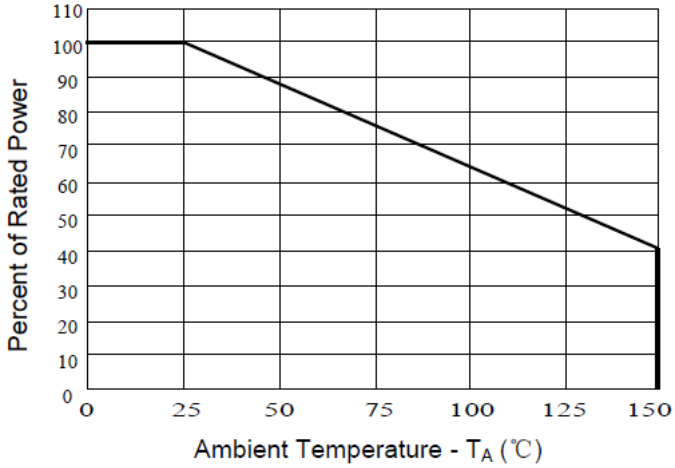


Fig.2 Power Derating Curve

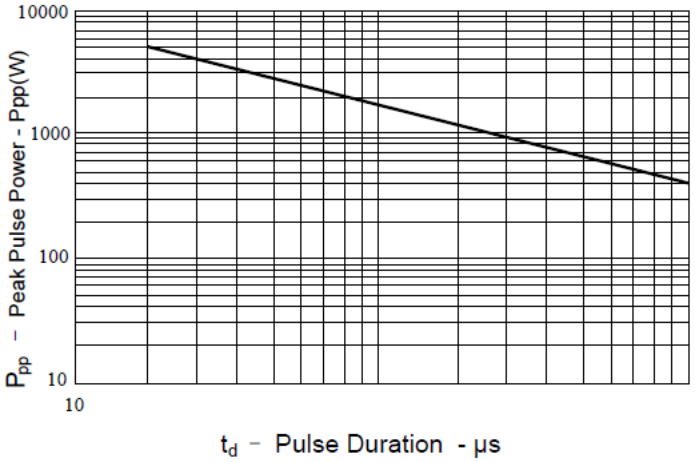


Fig.3 Peak Pulse Power vs. Pulse Time

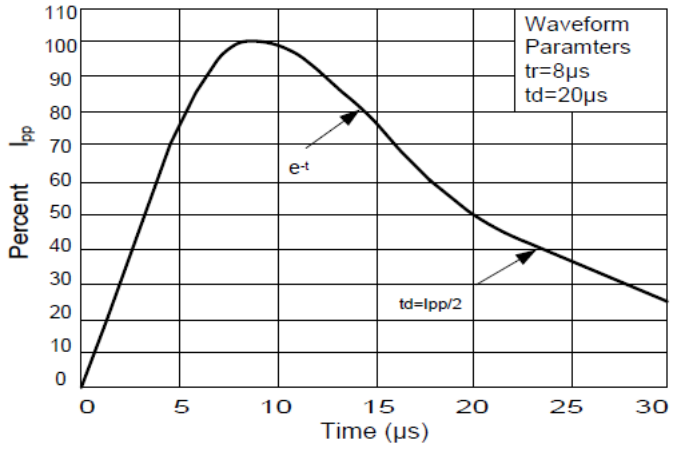
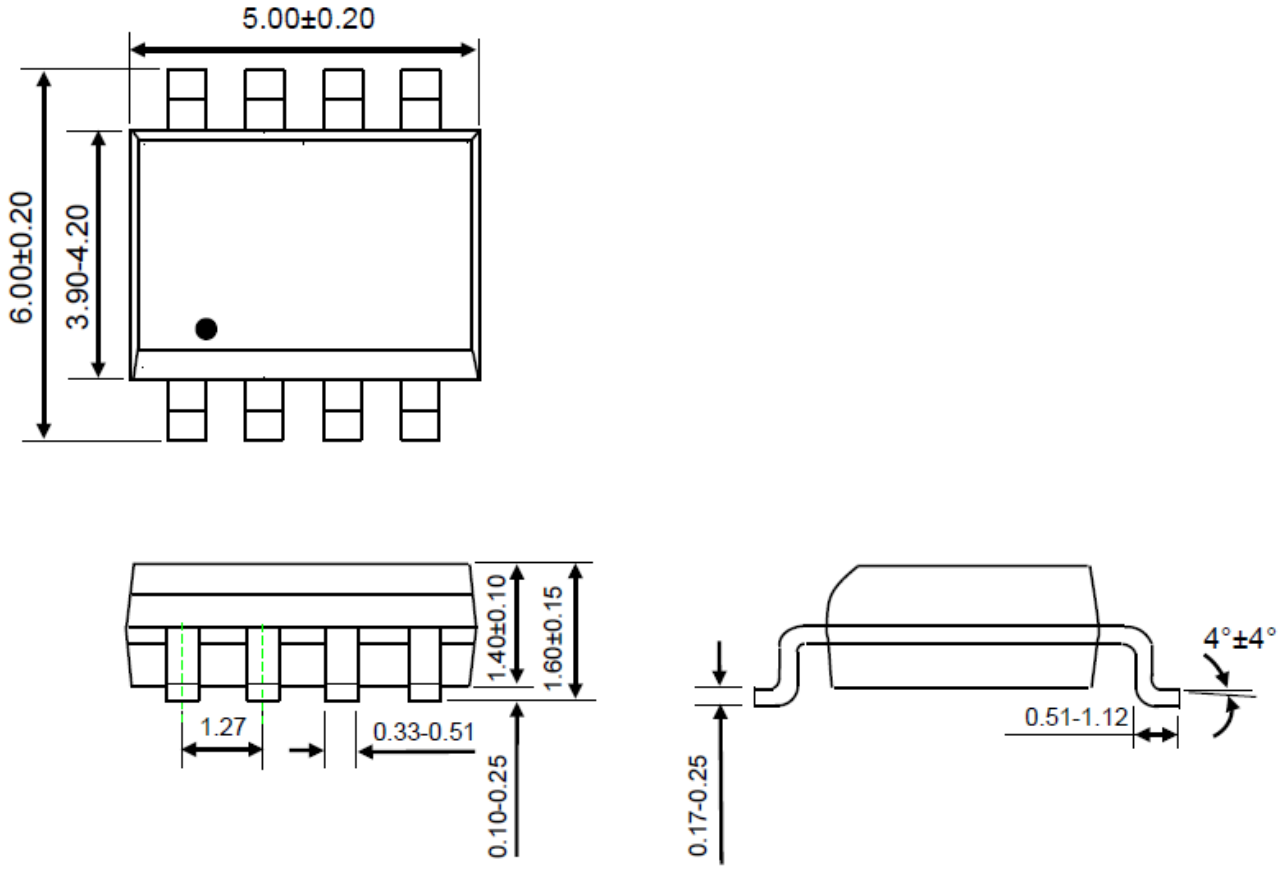


Fig.4 Pulse Waveform

PACKAGE INFORMATION

SOP-8

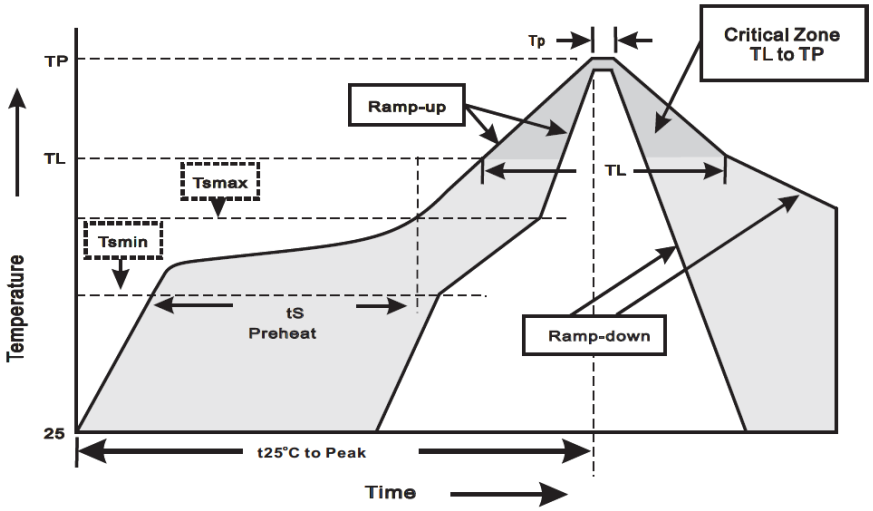


Unit: mm

SOLDERING PARAMETERS

SUGGESTED THERMAL PROFILES FOR SOLDERING PROCESSES

1. Storage environment: Temperature=5 °C~40 °C Humidity=55% ±25%
2. Reflow soldering of surface-mount devices



3. Reflow soldering

PROFILE FEATURE	SOLDERING CONDITION
Average ramp-up rate (T_L to T_P)	<3 °C/sec
Preheat - Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (min to max) (t_s)	 150 °C 200 °C 60 ~ 120 sec
T_{smax} to T_L - Ramp-upRate	 <3 °C/sec
Time maintained above: - Temperature (T_L) - Time(tL)	 217 °C 60 ~ 260 sec
Peak Temperature (T_P)	255 °C-0/+5 °C
Time within 5 °C of actual Peak Temperature(tP)	10 ~ 30 sec
Ramp-down Rate	<6 °C/sec
Time 25 °C to Peak Temperature	<6 minutes

CUSTOMER NOTE:

DISCLAIMER

The product information and the selection guide facilitates the selection of the ALPINESEMI™'s Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review the Data sheet(s) so as to confirm that the Device(s) meets functionality parameters for your application. The information furnished on the Data Sheet and the ALPINESEMI™'s Web Site is believed to be accurate and reliable at the time of preparation of this document. ALPINESEMI™ however, does not assume any inaccuracies that may arise when the components are mounted and removed. Furthermore, ALPINESEMI™ does not assume liability whatsoever, arising out of the application or the use of any of ALPINESEMI™'s product(s). Neither, does it convey any license under its patent rights nor the rights of others. These products are not guaranteed for use in life saving/support appliances or systems. ALPINESEMI™'s customers using these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and ALPINESEMI™ will not be responsible in any way(s) for any damage(s) resulting from such use.

Please check the website **www.alpinesemi.com** for continues updates and revision of datasheets.

DESIGN CHANGES: ALPINESEMI™ strives for continuous improvement and reserves the right to change the specifications of its products without prior notice. ALPINESEMI™ reserves the right to discontinue product lines without prior notice. Any product selection is a recommendation based on best understanding of such product(s) by our engineers. However, buyers are advised to rely on their own judgment for such selection of the products.

ALPINESEMI™ makes no warranty, representation or guarantee regarding the suitability of its products for any particular applications. Neither does ALPINESEMI™ assume any liability arising out of the applications nor the use of such products. ALPINESEMI™ specifically disclaims all liabilities either consequential or incidental.

All logos and information provided in the datasheets are for reference only. Any registered and/or trademark/logos belonging to respective companies be the property of those companies. ALPINESEMI™ extends the courtesy to them, if any of the information found in its datasheet.

Component Disposal Instructions

1. ALPINESEMI™ Semiconductor Devices are RoHS compliant and hence customers are requested to dispose as per the prevailing Environmental Legislation put forth in their specific country.

2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

ALPINESEMI

sales@alpinesemi.com
www.alpinesemi.com